GLX
Green Line
Extension

Massachusetts Bay Transportation Authority

Contract No. E22PS02

REVISED NOTIFICATION OF TSCA SELF-IMPLEMENTING CLEAN UP OF PCBS

Revision #02

03/13/2014

THE HDR/GILBANE TEAM A Joint Venture

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Revision History

Date	Issue	Changes	Notes
September 14, 2012	Rev. 0		
December 6, 2013	Rev. 1	Revision to reflect U.S. EPA Comments and to incorporate additional data.	
March 13, 2014	Rev 2	Revision to reflect U.S. EPA Comments and to incorporate	

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1 INTRODUCTION

Kleinfelder, on behalf of the HDR/Gilbane Joint Venture, has prepared this Self-Implementing Cleanup Plan (SIP) for use by the Massachusetts Bay Transportation Authority (MBTA) in conducting site remediation tasks prior to the demolition of an MBTA-owned building located at 21 Water Street, Cambridge, Massachusetts. The demolition is to be conducted as part of the MBTA's Green Line Extension (GLX) Project. This Notification has been prepared in accordance with the Toxic Substances Control Act (TSCA) requirements as outlined in 40 CFR 761.61(a).

During the fall of 2011, Nover-Armstrong Associates, Inc. (Nover-Armstrong), as a subcontractor to Kleinfelder, completed an Initial Hazardous Materials Survey of the 21 Water Street building. During the survey, Nover-Armstrong observed floor, exterior window and wall caulking that were considered to potentially contain polychlorinated biphenyls (PCBs). Samples collected by Nover-Armstrong indicated PCBs at concentrations ranging from 110,000 parts per million (ppm) to 993,000 ppm in the window and wall caulking, with lower concentrations detected in the floor caulking and mortar associated with the concrete walls. Based on these results, Nover-Armstrong conducted additional sampling of the concrete masonry units (CMU) surrounding the windows of the facility, of concrete and mortar surrounding impacted floor and wall samples, and confirmatory sampling of floor and wall caulking. Nover-Armstrong's reports are included as Appendices A-C.

Based on the results of this sampling, exterior window and interior and exterior wall caulking at the 21 Water Street building contains elevated concentrations of PCBs, which will require these materials to be disposed of as a PCB bulk product waste during building demolition. Floor caulking contains PCBs but at concentrations which allow for its classification as a federally exempt PCB waste. CMU surrounding facility windows and other building materials have not been significantly impacted by PCBs, but CMU within 6 inches of material identified as bulk waste will be disposed of as PCB bulk product waste in conformance with the U.S. EPA Bulk Product Waste Reinterpretation dated October 24, 2012

Subsequent to the determination of the presence of the PCB caulking, Kleinfelder implemented an iterative sampling and analysis program to evaluate if PCB concentration equal to or greater than 1.0 ppm were present in soil and/or asphalt surrounding the building.

The pavement assessment program determined the limits of pavement impact, with the exception of a paved area currently covered by a large soil stockpile associated with GLX construction. This area will be sampled and remediated as necessary following removal of the stockpile. If PCBs are identified in pavement in this area, a revised SIP will be prepared and submitted to U.S. EPA. The results of the confirmatory sampling program will be provided in the Remedial Action Report (RAR).

The limits of soil have not been determined to-date. Sampling on an adjacent property is planned; the results of that program will be incorporated in an amendment to this SIP; soil remediation and disposal activities will be documented in the RAR.

The goal of the Site Remediation detailed in this SIP is to remove all caulking that is classified as PCB Bulk Product Wastes from the 21 Water Street building, prior to the demolition of the building. The SIP includes removal and disposal of immediately surrounding building materials as Bulk Product Waste. This SIP also includes removal and disposal of all pavement and soils impacted by PCBs at or greater than 1.0 pm. A remedial approach has been developed for this project to achieve compliance with the remedial goals as stated and is presented herein. Due to site constraints, this SIP will address PCB impacts in a phased manner with pavement removal occurring first, followed by building remediation. Following completion of the building remediation and demolition of the remaining building structure to the top of slab, the soil removal program will be implemented.

The MBTA will have contract oversight for the work contained in this SIP and, therefore, will be responsible for the cleanup. Correspondences of final approvals or actions should be addressed to:

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1.1 SITE DESCRIPTION AND LOCATION

The Subject Site is located at 21 Water Street in Cambridge, Massachusetts. The location is shown on Figure 1-2- Site Location, in Appendix B. The Site formerly operated as the MBTA's Tire Garage, and is developed with a single, 11,914 square foot, slab on grade CMU block building with a metal frame and flat roof constructed around 1950. Two full size overhead doors provide access for larger vehicles. A tire warranty office was located on the ground floor; additional administrative space and the MBTA Key Shop were located in an upstairs balcony on the western side of the building. A kitchen/break room, furnace room, and a compressor room are also located on the ground floor. The remainder of the building is open garage space formerly used for tire maintenance. The building has been operated by MBTA for approximately 6 years. Before the MBTA it was operated as a vehicle maintenance facility by others.

The building is currently vacant and movable items have been removed.

The Site is bound by Water Street, a part public part private right of way, to the west, by the Glass Factory Condominiums (169 Monsignor Obrien Highway) to the south, by an MBTA owned commuter parking lot to the east, and by vacant land owned by NorthPoint LLC to the north. The property boundary to the north of the building is located approximately six-inches (6") off the back of the building. The Site property is also identified by the address 183 Monsignor McGrath O'Brien Highway, and by the City of Cambridge Assessor as Map 1, Block A, Lot 38.

1.2 DESCRIPTION OF PLANNED ACTIVITIES

The Green Line Extension Project is an initiative of the Massachusetts Department of Transportation (MassDOT) and MBTA. The project will extend existing MBTA Green Line service from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and College Avenue in Medford. Demolition of the 21 Water Street building is required as part of the GLX project. Demolition is proposed for Fall/Winter 2013, after which the property will be used as a construction laydown area. The majority of the property will be later developed as a busway associated with the new Lechmere T Station; a portion of the property will be used as a public roadway.

2 SAMPLING PROGRAM DESCRIPTION

2.1 INITIAL HAZARDOUS MATERIALS SURVEY (NOVEMBER 2011)

On November 2, 2011, as part of an initial pre-demolition hazardous materials survey of the 21 Water Street building, Nover-Armstrong, under contract to Kleinfelder, inspected building materials for the potential presence of PCBs. Visual inspection revealed floor, window and wall caulking that were considered potential PCB sources. Window glazing was not observed. Building materials were observed to be in poor to good condition, with areas of isolated damage. Nover-Armstrong collected eleven samples, including four floor caulking samples, three wall mortar samples (one painted and two unpainted), one sample of painted wall caulking, and three samples of the window caulking. Wall and window caulking materials were observed to be consistent and homogenous. Floor caulking samples were observed to be markedly "drier" than the more pliant wall and window caulking. Floor caulking was a very thin seam of caulk completely covered by dirt and fine particle debris. Caulking was not identified in other locations, such as doorways. No information is available regarding the origin of the PCBs. Based on the age of the building (constructed approximately 1950), we assume that the caulking was mixed on-site using PCB-containing oils and a powder base.

A total of 40 windows were identified .

Building Side	No. of Windows	Window Dimension
Eastern side	4 windows	4'1/2" x 3'
Western side	5 windows	4'2" x 4'3"
5 windows	4'2" x 3'	
Southern Side	14 windows	4'1/2" x 3'
4 windows	4'2" x 4'3"	
Northern Side	8 windows	4'2" x 3'

A total of 591.6linear feet of caulk surround the windows. This total equals the sum of all window dimensions, conservatively assuming caulk is present around all windows, with no gaps.

Mortar samples Wall-1, Wall-2 and Wall-4 were obtained in areas where mortar appeared to have been patched / repaired, therefore, a conservative sampling approach was used to assess for PCB content. There is no historical (or other) evidence to indicate the mortar was manufactured with PCBs.

Samples were submitted to Alpha Analytical Inc. (Alpha) of Westborough, Massachusetts for analysis of PCBs via EPA Method SW 846 3540C/8082 (Soxhlet Extraction Method).

PCBs were detected above laboratory reporting limits in the window and wall caulking samples analyzed at concentrations ranging from 110,000 mg/kg to 993,000 mg/kg. Lower PCB concentrations, ranging from 0.172 to 40.4 mg/kg were detected in the floor caulking and mortar associated with the concrete walls. Results are presented on Table 1 – Summary of 11/02/2011 Building Materials Analytical Results (for PCBs), included in Nover-Armstrong's report (Appendix A). The predominant PCB detected was Aroclor 1260. Lower concentrations of Aroclor 1254 were also detected in the floor caulking samples.

A review of the analytical report provided by Alpha for the 11/2/2011 sampling revealed that PCBs were detected in the Method Blank sample at 16.2 mg/kg. According to Alpha, the Method Blank was analyzed as part of the sample batch. During Soxhlet extraction and/or during the blow down process, the Method Blank, and potentially some of the building material samples, was contaminated by the window caulking samples, which contained higher PCB concentrations and were run at the beginning of the batch. Therefore, according to Alpha, samples containing less than 16 mg/kg PCBs, including FLOOR-1, FLOOR-3, FLOOR 4, WALL-1 and WALL-4, may not have contained PCBs, or may have contained PCBs at concentrations lower than indicated by the laboratory report.

Based on the results of the initial hazardous materials building survey, additional sampling was determined to be required to confirm the preliminary results; determine if materials reported as containing PCBs at less than 16 mg/kg actually contained PCBs; and, determine if CMU surrounding the PCB caulking was impacted by PCBs.

A complete copy of Nover-Armstrong's initial hazardous materials survey report, including figures showing sample locations and complete analytical reports, is included as Appendix A.

2.2 SITE-SPECIFIC QAPP ADDENDUM A1, REVISION 1.2,

Based on the findings of the initial hazardous materials building survey, Nover-Armstrong, under contract to Kleinfelder, completed a Site-Specific QAPP Addendum A1, dated June 2012. The QAPP addendum documented all proposed sampling procedures, laboratory analytical methods, equipment necessary to complete the sampling procedures, quality assurance/quality control measures to be taken, and data assessment protocols in place for the supplemental analysis of PCBs in CMU surrounding the windows of the facility and in building materials (concrete, caulking and mortar) surrounding impacted floor and wall samples. The goal of the sampling was to identify potential PCB impacts from window caulking, floor caulking, wall caulking, and/or wall mortar leaching into building materials adjacent to the previously-identified PCB-impacted areas and to assess the limits of any PCB contamination identified. The QAPP is included as Appendix B.

2.3 SUPPLEMENTAL BUILDING MATERIALS SURVEY

A supplemental building materials survey was conducted by Nover-Armstrong, under contract to Kleinfelder, on July 11 through 13 and July 17, 2012 See Appendix C for the results of this survey,

including figures and photographs. The results of the survey were summarized in a "Supplemental Building Materials Survey" dated August 8, 2012.

Note that MBTA assumed, based on the homogeneity of the window caulking observed, that all window caulking contains PCBs > 50 ppm and that it would be managed as a PCB Bulk Product Waste. Therefore, additional window caulking sampling was not conducted in the supplemental survey.

CMU sampling was conducted on all sides of the building to evaluate the potential for leaching of PCBs into surrounding building substrate. Sampling was conducted on all walls to account for potential impacts from differing weathering conditions.

2.3.1 CMU Surrounding Windows

Between July 11 and July 13, 2012, Nover-Armstrong collected samples from concrete CMUs adjacent to facility's forty windows. Ten windows were selected for characterization of CMU surrounding each window. Each window was designated as "A" through "J" to allow for a naming convention for the CMU samples associated with each window. In the same manner, each window could have been designated as "1" through "10." In this instance, the samples surrounding each window would be classified as "CMU A-#." Figure 2 identifies the location of each window by letter designation and associated CMU samples.

Each window was identified as one sample group. Each group was comprised of eight grab sampling points. Samples were obtained from all four sides of each window at a distance from the window equaling approximately one-half of the CMU length (6 inches). CMU are approximately 6" high x 12" wide, laid horizontally. At the top and bottom of the windows the samples were collected from a consistent distance of 6" from the bottom of the concrete sill, or below 1 course of CMU brick. This conservatively included the window and underlying sill. Additional samples were collected from the terminus of one cracked area originating at a window on an exterior wall on each side of the building (four total).

In collecting CMU samples surrounding the windows, MBTA recognized that the sampling locations were, technically, greater than 6" from the actual caulking as the caulking was located on the recessed face of the CMU as opposed to the exterior face of the building. However, by sampling at these locations, we can, based on the results, state that oils have not absorbed to that distance. As the windows are inset it would be impractical to remove the windows by any method save but cutting the interior and exterior surfaces of the walls where we have confirmed there are no PCB impacts ≥ 1 ppm.

The concrete samples were obtained following the guidance provided in the USEPA Region 1 Standard Operating Procedure for Sampling Porous Surface for Polychlorinated Biphenyls (PCBs), Revision 4 (May 2011), EIASOP_POROUSSAMPLING and in accordance with the Code of Federal Regulations (CFR) 761. This guidance was provided within the Standard Operating Procedures appendix of the QAPP, attached to this report as Appendix B.

A rotary impact hammer equipped with a one-inch diameter carbide drill bit was used to generate a fine concrete powder, which was collected into containers provided by Alpha. Samples were

collected at approximately one-inch intervals. Four to eight sampling holes were required to obtain the required amount of concrete powder for laboratory analysis and to include duplicates for quality assurance purposes. A total of 80 concrete grab samples were collected from around the windows and 4 were collected from building cracks proximate to select windows. Six additional duplicate samples were also collected. The samples were submitted to Alpha for analysis of PCBs by EPA Method SW 846 3540C/8082 (Soxhlet Extraction Method).

Disposable sampling equipment was discarded after use and was not reused. All non-disposable sampling equipment was decontaminated after each sample was collected according to the guidelines for decontamination provided in the *Standard Operating Procedure for Sampling Porous Surface for Polychlorinated Biphenyls (PCBs), Revision 4 (May 2011), EIASOP_POROUSSAMPLING* guidance. All rinse liquids generated during the decontamination process were stored in properly labeled 55 gallon drums, pending laboratory analytical results. Six Equipment Blank samples were collected and submitted to Alpha for analysis for PCBs.

2.3.2 Building Materials Not Surrounding Windows

On July 17, 2012, Nover-Armstrong collected additional samples surrounding each of four interior and/or exterior building material sampling locations that were not associated with window caulking, but were identified during the November 2011 Initial Hazardous Materials Survey as potentially containing PCBs. These samples were identified as WALL-1 (interior), WALL-3 (interior), WALL-4 (exterior), and FLOOR-2 (interior). The samples were obtained from all four sides of each sampling location at vertical and horizontal distances of approximately 6 inches from the original November 2011 samples. The number of discrete subsample collection points varied slightly in each location to obtain adequate sample volume. The building materials consisted of caulking, concrete, and mortar, depending on the sample location. The building material samples were obtained following the guidance provided in the USEPA Region 1 *Standard Operating Procedure for Sampling Porous Surface for PCBs, Revision 4 (May 2011, EIASOP_POROUSSAMPLING* and in accordance with 40 CFR 761.

Concrete and mortar samples were collected as described in section 2.3.1. Caulking samples were collected using a chisel and sharp knife to generate representative samples. Samples were submitted to Alpha for analysis of PCBs by EPA Method SW 846 3540C/8082 (Soxhlet Extraction Method).

2.3.3 Wall sample confirmation sampling

In June 2013, NAA collected additional samples of mortar from the area of Wall-1 and Wall-4. Samples were submitted to ESS Laboratories of Cranston, RI and analyzed for PCBs EPA Method SW 846 3540C/8082 (Soxhlet Extraction Method). Samples were collected to determine if the elevated PCB concentrations identified in the prior sampling program were associated with the trip contamination identified in the Method Blank.

The results of the June 2013 sampling reported PCB concentrations of 0.168 and 0.231 mg/kg, respectively.

2.3.4 Sampling Results

Complete sampling results, including laboratory analytical reports, summary tables, and a data quality and usability evaluation, are included in Nover-Armstrong's Supplemental Building Materials Survey, attached to this report as Appendix C.

Of the eighty samples collected from CMU surrounding the 21 Water Street building windows, PCBs were detected above laboratory reporting limits, but below 1.0 mg/kg, in 47 samples. Concentrations detected ranged from 0.0381 to 0.5 mg/kg. PCBs were also detected above laboratory reporting limits, but at concentrations of less than 1 mg/kg, in two of the four concrete samples surrounding building cracks (0.0809 mg/kg and 0.368 mg/kg) and in nine of the twelve samples surrounding the previously sampled locations at the interior and exterior building walls and floor (0.0558 mg/kg to 1.8 mg/kg). In Wall sample 3-3, Aroclor 1254 was reported at 0.922 and Aroclor 1260 at 0.854, for a total PCB concentration of 1.78 mg/kg.

The results of the June 2013 mortar sampling program from the area of Wall-1 and Wall-4, identified PCB concentrations of 0.168 and 0.231 mg/kg, respectively. PCBs were detected in the floor caulk at 0.651 mg/kg and 1.52 mg/kg.

PCBs were detected in the wall caulk at 18,400 mg/kg and 22,500 mg/kg.

2.4 SITE-SPECIFIC QAPP ADDENDUM A2

Based on the findings of the supplemental hazardous materials building survey, Nover-Armstrong, under contract to Kleinfelder, completed a Site-Specific QAPP Addendum A2, dated July 2013. The QAPP addendum documented all proposed sampling procedures, laboratory analytical methods, equipment necessary to complete the sampling procedures, quality assurance/quality control measures to be taken, and data assessment protocols in place for the analysis of PCBs in pavement and soil surrounding the 21 Water Street building. The goal of the sampling was to identify potential PCB impacts from window and wall caulking migrating into pavement and/or soil adjacent to the previously-identified PCB-impacted areas and to assess the limits of any PCB contamination identified. The QAPP is included as Appendix B.

2.5 PAVEMENT SAMPLING PROGRAM

At the direction of U.S. EPA, Kleinfelder implemented an iterative asphalt pavement sampling program to determine if, and to what lateral extent, pavement surrounding the building on the west, south and north sides had been impacted by PCBs from the window and/or expansion joint caulking.

Kleinfelder subsequently conducted four (4) iterative rounds of asphalt sampling to determine the extent of PCBs in asphalt at the 21 Water Street property. Iterative sampling locations were necessary after the initial sampling round failed to identify clear limits of PCB contamination. All samples collected were submitted to Con-Test Analytical Laboratory of East Longmeadow, MA. Samples were analyzed for PCBs by U.S. EPA Method 8082A with Method 3540 Soxhlet extraction,

in accordance with U.S. EPA requirements. A Quality Assurance Program Plan (QAPP) was developed for this sampling program, which included collection of duplicate and trip blanks.

Note that Rounds 1 and 2 also included collection of soil samples; details and results of soil sampling are provided in Section 2.6.

2.5.1 Sampling Protocol

Asphalt samples were collected in rounds 1 – 3 using disposal chisels. In Round 4, heavier chisels were utilized and decontaminated between each sample. Chisels were decontaminated between sample locations using EPA guidance "Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs), May 2011.

Samples were collected in one-inch squares to a depth of approximately ½ inch below the asphalt surface. All samples collected were submitted to Con-Test Analytical Laboratory of East Longmeadow, MA. Samples were analyzed for PCBs by U.S. EPA Method 8082A with Method 3540 Soxhlet extraction, in accordance with U.S. EPA requirements. A Quality Assurance Program Plan (QAPP) was developed for this sampling program, which included collection of duplicate and trip blanks.

Round 1: Four (4) samples of asphalt were collected at six-inches (6") from the building foundation on the south (3 locations) and east sides (1 location). Designations for Round 1 (asphalt) were: Center Asphalt 6 in., E Asphalt 6 in., SE Asphalt 6 in., and SW asphalt 6 in.

Round 2: In Round 2 and in subsequent rounds, additional sampling locations were added to: 1) fill lateral gaps in characterization and, 2) expand the characterization further outwards from the building. Round 2 consisted of 25 samples collected at six, twelve, twenty-four inches from the building plus two duplicates.

Sample designations in Round 2 included: Center Asphalt 12 in., Center Asphalt 24 in., East 3 Asphalt 12 in. East 3 Asphalt 24 in., East Asphalt 12 in., East Asphalt 24 in., Southeast 2 Asphalt 24 in., Southeast Asphalt 12 in., Southeast Corner Asphalt 24 in., Southwest Asphalt 12 in., Southwest Asphalt 24 in., Southwest Corner Asphalt 12 in., Southwest Corner Asphalt 24 in., West 2 Asphalt 12 in., West 2 Asphalt 24 in., West 3 Asphalt 6 in., West Asphalt 6 in., Southeast 3 Asphalt 12 in., Southeast 3 Asphalt 24 in., and Southeast 3 Asphalt 6 in.

Round 3: Round 3 included 21 samples, collected at distances of between one (1) and five (5) feet outwards from the building.

Sample designations in Round 3 included: Center Asphalt (4ft), Center Asphalt (5ft), East Asphalt (4ft), East Asphalt (5ft), East Asphalt 2 (4ft), East Asphalt 2 (5ft), East Asphalt 4 (1ft), East Asphalt 4 (3ft), East Asphalt 4 (4ft), Southeast Asphalt 2 (3ft), Southeast Asphalt 2 (4ft), Southeast Asphalt 4 (1ft), Southeast Asphalt 4 (3ft) ., Southeast Asphalt 4 (4ft), Southwest Asphalt 2 (1ft), Southwest Asphalt 2 (3ft), Southwest Asphalt 2 (4ft), West Asphalt 2 (3ft), West Asphalt 4 (1ft), West Asphalt 4 (3ft), and West Asphalt 4 (4ft).

Round 4: Round 4 included 28 samples, collected at distances of six inches and 10, 20 and 40 feet from the building. Samples were also collected at the building fence line.

Sample designations in Round 4 included: Center Asphalt (10')., Center Asphalt (20')., Center Asphalt (Fence)., East Asphalt (10')., East Asphalt (20')., East Asphalt (Fence)., East Asphalt 2 (10')., East Asphalt 2 (19')., East Asphalt 2 (Fence)., East Asphalt 4 (20'), East Asphalt 5 (10')., East Asphalt 5 (20'), Southeast Asphalt 2 (10') Southeast Asphalt 2 (20'), Southeast Asphalt 2 (Fence), Southeast Asphalt 4 (Fence), Southeast Corner Asphalt 2 (10'), Southwest Asphalt 2 (10'), Southwest Asphalt 2 (20'), Southeast Asphalt 4 (10'), Southeast Asphalt 4 (20'),

Southwest Asphalt 2 (40'), Southwest Asphalt 2 (Fence), Southwest Asphalt 3 (10'), Southwest Asphalt 3 (40'), Southwest Asphalt 3 (6"), West Asphalt 2 (20'), and West Asphalt 4 (12.5').

2.5.2 Results

Four sampling rounds were conducted by Kleinfelder. See the attached figure, "21 Water Street Asphalt Sample Locations Plan," for sampling locations. The results of each round are summarized in Table 1 – Summary of Asphalt Sampling Results.

Round 1

Three of the four asphalt sampling locations were impacted by PCBs ≥ 1 ppm with detections between 0.26 and 2.5 ppm.

- Center Asphalt 6 in.
- E Asphalt 6 in.
- SE Asphalt 6 in.

Round 2

Of these 25 samples, eight (8) indicated a PCB concentration of ≥ 1.0 ppm, with a maximum concentration of 2.8 ppm. No clear outer boundary for PCBs < 1.0 ppm was identified.

- Center Asphalt 12 in., Center Asphalt 24 in.
- East Asphalt 12 in., East Asphalt 24 in.
- Southeast 2 Asphalt 24 in.
- West 2 Asphalt 12in, West Asphalt 6in.
- East 2 Asphalt 36in.

Round 3

Of the 21 samples, 14 locations contained PCBs at ≥ 1.0 ppm, with a maximum detected concentration of 2.06 ppm.

- Center Asphalt (4ft)
- Center Asphalt (5ft)
- East Asphalt (4ft); East Asphalt (5ft)
- Southeast Asphalt 2 (3ft), Southeast Asphalt 2 (4ft),
- Southeast Asphalt 4 (1ft), Southeast Asphalt 4 (3ft), Southeast Asphalt 4 (4ft)
- Southwest Asphalt 2 (1ft), Southwest Asphalt 2 (3ft), Southwest Asphalt 2 (4ft)

- West Asphalt 4 (1ft), West Asphalt 4 (4ft).

Again, the outer samples did not consistently identify a boundary of PCBs at < 1.0 ppm.

Round 4

Of the 28 samples, PCBs were reported ≥ 1.0 ppm at five (5) locations, with a maximum detected concentration of 5.8 ppm (Southwest Asphalt 3 6").

- Center Asphalt (10'), Center Asphalt (20')
- East Asphalt 2 (10')
- Southeast Asphalt 2 (10'), Southeast Asphalt 4 (10')
- Southwest Asphalt 3 (6")

At the completion of Round 4, a clear pattern of PCB distribution and limits of PCBs ≥ 1 ppm was defined, with the exception of in the area of the pavement not accessible due to the presence of the soil stockpile and concrete blocks containing the pile (front of building). Sampling and analysis of pavement in this area will be conducted in 2014 following removal of the soil stockpile and defining blocks.

2.5.3 Limits of PCBs in Pavement

2.5.3.1 South Side (Front of Building)

At all sampling locations at the fence line (five locations), PCB concentrations were either not detected above the laboratory reporting limits or at concentrations less than 1.0 ppm. Note that the presence of the soil stockpile and defining concrete blocks prevented sampling across the front of the building at the eastern half of the building front at distances beyond 30 feet; samples were collected in this area at 20 feet and at the property boundary (fence line).

At 40' from the building (two samples) PCB concentrations were less than 1.0 ppm. At 20' from the building, one of six samples (Center Asphalt) reported PCBs at 2.9 ppm. The remaining samples were reported at < 1.0 ppm.

2.5.3.2 East Side

At 10' from the side of the building, one sample was reported at 0.98 ppm, which is considered to equal 1.0. At 20' from the building at the east side no sample exceeded 1.0 ppm. Equally, at the further outward fence line sample results were non-detect for PCBs.

2.5.3.3 West Side

At the west side of the building, PCB concentrations in pavement diminish to less than 1.0 ppm at a distance of two feet from the building with the exception of in line with sample West Asphalt 4 where PCBs were detected at 1.26 ppm. Pavement PCB concentrations at West Asphalt 4 were less than 1.0 ppm at the next outward sample (12.5').

2.5.4 Pavement Removal Limits

A plan documenting the pavement sampling locations is attached. Note that in making the boundary determinations, concentrations of 0.95 or greater were rounded upwards to equal 1.0 ppm. Samples of 0.94 ppm or less were considered less than 1.0 ppm. This rounding is considered reasonably conservative given the accuracy of the test method

The results of the sampling program have identified clear limits to PCB impacts ≥ 1.0 ppm in asphalt on the west and east sides of the building. Similarly, at the southwest and southeast corners of the building, the limits of PCBs are defined and close to the building. At the front of the building, there is one outlier sample. Figure 1, Limits of Pavement Removal, 2 highlights PCB concentrations and indicates the recommended asphalt removal limits.

West Side: Saw cut beginning at rear of building at 12.5' (150 inches) out from building; cut southwards to limits of transformer pad then cut eastwards to 3' (36 inches) outward from building in line with sample West Asphalt; continue saw cut at 3 feet to saw cut at front of building per Plate 1 diagram. Remove asphalt from building to limits of saw cut.

East Side: 1 of 4 samples at 10 feet reported PCBs > 1 ppm. At 20 feet, all samples were < 1.0 ppm. Saw cut at 20 feet; remove asphalt from building to 20 feet. A concrete pad is located at the east side of the building within the limits of pavement removal. The concrete pad shall be removed and disposed of with the pavement.

South (Front) Side: Results at the western portion of the building (from corner to sample SW Asphalt 2 and 3 are < 1.0 ppm at 10 feet and outwards. Center Asphalt samples at 10 and 20 feet were > 1.0 ppm. Samples Southeast Asphalt 2 and 4 were < 1.0 ppm at 20 feet. Sampling beyond 20 feet from Center Asphalt and east was prevented by the soil pile. Samples beyond the pile were non-detect for PCBs.

Beginning at building southwest corner saw cut 10 feet outward from building until in line with sample location Southwest Asphalt 2; saw cut southerly to 30' and then easterly to limits of soil pile. Saw cut as close as possible to concrete blocks. See Plate 2.

Kleinfelder will collect additional asphalt samples from below area of soil stockpile following soil removal to confirm no residual PCB contamination ≥ 1.0 ppm.

2.6 SOIL SAMPLING PROGRAM

At the direction of U.S. EPA, Kleinfelder implemented an iterative soil sampling program to determine if, and to what lateral extent soil at the rear of the 21 Water Street building had been impacted by the presence of PCBs from building window and expansion joint caulking. Soil samples were obtained following Nover-Armstrong's standard operating procedure (SOP) for soil sample collection (SOP.NAA_A.01.1), which references USEPA and MassDEP guidance documents, where applicable.

Twenty-four soil samples were collected. Initially, six samples (at six and twelve inches from the building at three locations) were analyzed by the laboratory while the remainder, which included

locations at greater distances and depths below grade were placed on hold. Subsequent to the detection of PCBs >1 ppm in all initial samples, "hold" samples were iteratively authorized for analysis.

Soil samples were collected to the north of the site structure beneath three window groupings identified as "NW Window," "Center Window," and "NE Window" and beneath a building expansion joint. Multiple sampling points are associated with each of the three window groupings. Samples were collected at horizontal distances of 12", 24", 36", and/or 48" away from the exterior wall of the structure beneath the windows. At the expansion joint samples were collected at six and twelve inches from the building. Samples were collected vertically from each sampling location at various depths: 0-6", 6-12", and/or 12-18" below the ground surface. The soil samples were collected using a hand auger and trowel, which were decontaminated between sample locations. As noted previously, samples collected at a distance of greater than six-inches off the rear of the building were determined to be located on an abutting property, the fence line of which was located within the abutting property boundary.

2.6.1 RESULTS

Definition of the horizontal and vertical limits of soil impacts were generally identified on the western half of the rear of the building, as defined by the samples collected at locations "Northwest Window" and "Center Window."

Northwest Window: At sample location Northwest Window, PCB concentrations at the 0 – 6" horizon decreased consistently to < 1 ppm at 36" and outward. Vertically, PCBs were identified above 1.0 ppm in the 0 – 6" horizon to 24" from the building. Beginning at 24" outward, soils at 6+ inches were consistently reported at < 1.0 ppm PCBs.

On the eastern side of the building rear, as defined by sample location Northeast Window, PCB concentrations at the 0-6" horizon was consistently reported above 1 ppm from 6" to the sampling limits at the perimeter fence at 36" outward. At 12" outward, PCBs were reported at < 1.0 ppm in the 6-12" horizon. At 24" outward, PCB concentrations exceeded 1.0 until the 12-18" horizon. Obstructions prevented sampling below 6" at the 36" outward sample. The results of soil sampling conducted to-date are summarized in Table 2 – Results of Soil Sampling Program.

2.6.1.1 Additional Soil Sampling Program

Additional soil samples will be collected at the following locations and depths below grade to clearly define the limits of soil impacts.

- **Building Northwest Corner**: collection of samples at 96" from building at 0-6, 6-12, 12-18 inches below grade (sample Northwest Corner).
- **Between Northwest Window and Northwest Building Corner**: Collection of samples at 12", 24" and 36" from building at 0-6, 6-12, 12-18 inches below grade (Sample NP-1).
- **Between NW Expansion Joint and Center Window**: collection of samples at 24" and 48" from building at 0-6, 6-12, 12-18 inches below grade (Sample NP-2).
- **Center Window**: collection of samples beyond the chain link fence at 60 inches from building at 0-6, 6-12, 12-18 inches below grade.

- **Between Center Window and Northeast Window**: collection of samples at 24" and 48" from building at 0-6, 6-12, 12-18 inches below grade (Sample NP-3).
- **Northeast Window**: collection of samples beyond chain link fence at 48, 60, and 72 inches from the building at 0-6, 6-12, 12-18 inches below grade.
- **Off Northeast Corner**: collection of samples at the intersection of 24" north and 12" east of the building northeast corner at 0-6, 6-12, 12-18 inches below grade.
- **Off East Side:** collection of sample at outside of fence at property boundary beyond fence (72" from building) at 0-6, 6-12, 12-18 inches below grade (Sample NP-4).

Based on the results of this sampling program additional soil sampling may be required. Additional samples will be collected from 0-3, 3-6, 6-12, and 12-18 inches below grade.

2.6.1.2 Soil Remediation Program

Following receipt and review of soil analytical data from the samples described above, Kleinfelder will prepare a supplement to this SIP for U.S. EPA review. The Supplemental SIP will define the limits of soil removal and describe methods for soil removal and Site restoration.

As discussed with U.S. EPA, soil removal will be conducted following demolition of the 21 Water Street building.

2.7 MANAGEMENT CATEGORIES

Based on the results of the 2011 and 2012 building materials surveys:

- Exterior window caulking at the 21 Water Street building contains PCBs at concentrations ranging from 110,000 to 993,000 mg/kg. Three window caulking samples were collected – based on these results, all window caulking from the 21 Water Street building will be presumed to be impacted with PCBs at a concentration of greater than 50 mg/kg and will managed as PCB Bulk Waste.
- Based on the concentrations of PCBs detected in the window caulking, CMU adjacent to the window caulking, up to a distance of approximately 6" outward along the face of the building, will be presumed to be impacted and will be managed as PCB Bulk Waste. The only other option would be to remove the caulking, then the windows and then sample the face of the inset adjacent to where the caulking contacted the CMU. As this would significantly impact the scheduling for removal of the caulking and adjacent CMU, this sampling program is considered a conservative approach. The planned removal program will remove the windows intact with the surrounding CMU to a lateral distance of 7" and dispose of the combined materials as PCB Bulk Waste.
- CMU surrounding the 21 Water Street building windows at a distance of approximately 6 inches contain PCBs below laboratory reporting limits or at concentrations of less than 1 mg/kg. Based on these results, CMU 6 inches and further from the window caulking is not regulated and will be disposed of or recycled as general construction waste.
- CMU surrounding cracks originating at the windows contain PCBs at less than 1 mg/kg and will be managed as general construction waste.

- Wall caulking in the interior of the 21 Water Street building contains PCBs at concentrations ranging from 18,400 mg/kg to 191,000 mg/kg. Based on these results, all interior wall caulking will be presumed to contain PCBs at greater than 50 mg/kg and will be managed as PCB bulk waste.
- Based on the concentrations of PCB detected in the wall caulking, CMU within 6 inches of the wall caulking will be presumed to be impacted with PCBs at greater than 1 mg/kg, but less than 50 mg/kg. These building materials will be disposed of with the windows and associated caulking as PCB Bulk Waste.
- CMU at a distance of 6 inches and greater from the interior wall caulking contains PCBs at less than 1 mg/kg, if at all, and will be managed as unregulated general construction waste.
- Floor caulking in the interior of the 21 Water Street building contained PCBs at less than 50 mg/kg. There was no indication that the total PCB concentration in the caulk had been modified by subsequent activities. Therefore, the floor caulking is considered a Federally Excluded PCB Product.
- Based on the low concentrations of PCBs detected in the 21 Water Street floor caulking, the concrete floor of the building will be managed as general construction waste.
-
- Based on the results of the asphalt sampling program, certain paved areas of the property surrounding the building on the west, south and west sides have been impacted by PCBs at concentrations ≥ 1.0 ppm. These areas of impacted pavement will be removed and disposed of as PCB Remediation Waste (<50 ppm) in a landfill permitted to receive materials containing less than 50 ppm PCBs. Pavement will be saw-cut at locations where PCB concentrations have been confirmed to be less than 1.0 ppm and asphalt between the saw-cut and the building will be removed and disposed of. In the area of the existing stockpile, as discussed above, asphalt will be cut to as near as feasible to the face of the concrete blocks the side of the stockpile area; following removal of the stockpile and concrete blocks, the currently covered area will be sampled for PCB impacts. Additional asphalt removal will be conducted as required, based on the results of the asphalt sampling program.

3 REMEDIATION PROCEDURES

The goal of these building material remediation efforts is to remove all PCB Bulk Product Wastes, and any associated materials classified as PCB Remediation Waste, from the 21 Water Street building prior to building demolition. PCB Bulk Product Wastes (caulk) and building materials classified as PCB Remediation Waste will be removed using abatement work practices and engineering controls to limit the potential release of PCB dust and/or debris. No segregation of federally and non-federally regulated PCB wastes will be performed during removal and all PCB impacted material will be removed together; caulking and surrounding CMU will be disposed of together as PCB Bulk Product Waste. Pavement impacted by PCBs at ≥ 1.0 ppm will be removed and disposed of as PCB Remediation Waste (<50 ppm).

Soil has been confirmed at the rear of the building to have been impacted by PCBs ≥ 1.0 ppm. The full extent of soil impacts has not been determined to-date, pending completion of additional sampling on a property abutting the MBTA 21 Water Street property to the north. Per discussions with U.S. EPA, this SIP will be implemented in a phased approach. Following a determination of the limits of soil impacts, an amendment to this SIP detailing a proposed soil removal program will be prepared and submitted to U.S. EPA.

The work will be performed by a specialty contractor utilizing workers afforded appropriate hazard communication training and under the supervision of an appropriately educated and trained third party (Field Inspector) that can validate appropriate removal techniques and confirm thorough removal of identified materials. The contractor and Field Inspector have not yet been selected for the project. The Field Inspector shall be provided by the contractor.

Prior to beginning caulk removal, the contractor will establish exclusion and decontamination zones in accordance with OSHA guidelines. The areas will be taped off and proper signage will be installed to keep other workers or visitors out of the work area. The contractor will use poly sheeting to create decontamination zones as needed to perform work in each area.

At each window location, the window and associated caulk will be removed by removing the window intact from the building including surrounding CMU to a distance approximately ½ a block length, or six inches, from the window edge. Conservatively, the contactor may saw cut at seven inches. The window and surrounding CMU will then be containerized and transported offsite for appropriate disposal.

At the location of each wall seam identified as containing PCB caulk, the caulking material will be removed intact with the surrounding building material, by cutting with a cut-off saw or similar tool, at a distance of 6+ inches from the PCB caulk. The caulk and surrounding material will be containerized and transported offsite for appropriate disposal.

3.1 SAFETY AND MONITORING REQUIREMENTS

The abatement work will be performed as described above prior to demolition of the building, but after the building is vacated by its current occupants. It is anticipated that during abatement

activities, only abatement workers and related personnel will be in the remediation area. A control area, demarcated with barriers and signs, will be established outside of the regulated/containment areas. Only properly trained personnel associated with the removal and abatement will be allowed within the control area. The Field Inspector will maintain the control area and prevent unauthorized personnel from entering the area. Only those personnel actively working on the removal and abatement actions will be allowed within the regulated/containment area, and then only when equipped with the appropriate Personal Protective Equipment (PPE), which will be include, but not be limited to, gloves, rubber boots, Tyvek suits, half and / or full face respirators (with combined oil/gas and particulate filter cartridges), and safety glasses.

During removal activities, dust monitoring will be performed in the control area immediately outside of the regulated/containment area. Monitoring will be performed for total suspended particulates (TSP) (dust). The background concentration within each control area will be determined prior to remedial actions and a control area background level will be established. If, during the performance of air monitoring during removal, the dust levels outside the regulated/containment area are observed to increase by 20% over the background level determined prior to the remediation, the contractor shall stop work, and inspect and/or reestablish the regulated/containment area and associated engineering controls. The contractor will then decontaminate the control area if it is determined that engineering controls were not functioning properly.

3.2 ENGINEERING CONTROL DESCRIPTIONS

3.2.1 Interior Building Remediation

Interior remediation procedures are as follows:

- Areas where PCB bulk products will be removed are to be pre-cleaned using HEPA filtered equipment and/or wet methods as appropriate to collect all loose dust and debris which may contain PCB.
- Because PCB remediation will be performed prior to building demolition but after the building is vacated, all movable objects are anticipated to have been removed from the work area prior to the start of work. If fixed objects such as the furnace, hot water heater, etc. could be impacted by dust generation during saw-cutting of CMU, these items will be enclosed with one layer of six mil polyethylene sheeting sealed with tape.
- Any openings between the Remediation Area and non-remediation areas will be sealed off with critical barriers consisting of a minimum of one layer of six mil polyethylene sheeting sealed with tape.
- The Contractor shall cover the wall caulking and surrounding CMU to a distance of approximately six-inches with one layer of six mil polyethylene sheeting sealed securely to the surrounding with tape and adhesives.
- The Contractor shall saw-cut the surrounding CMU at a distance of approximately six inches from the caulking in all directions and remove the CMU and windows including caulking intact. The caulking and surrounding CMU will then be containerized and transported offsite for appropriate disposal. Note that the Contractor shall saw-cut from either the interior

and/or exterior to facilitate intact removal of the window, surrounding CMU and the concrete sill beneath each window.

- Signs will be posted outside the enclosure to deter unauthorized personnel from entering the building.
- Removal work practices within the regulated area will be implemented which facilitate the removal of the PCB Bulk Product Waste and associated CMU while also limiting the amount of dust and debris generated.
- All building materials removed during the remediation will be wrapped in polyethylene sheeting and transported to the waste storage area. The poly sheeting will be secured with tape to ensure that dust is not released during the transport; the contractor will be responsible for the remediation of any new releases caused by spillage. Windows and CMU removed at the expansion joints will be stored on and under secured poly sheeting within the building. Asphalt will be live loaded into trucks for off-site disposal as a < 50 ppm PCB Remediation Waste. Asphalt will not be stockpiled.

3.2.2 Exterior Building Remediation

Exterior remediation procedures are as follows:

- Pavement surrounding the building where PCB concentrations have been identified to be ≥ 1.0 ppm will be removed and disposed of as PCB Remediation Waste (<50 ppm).
- The ground adjacent to and beneath the areas where PCB Bulk Product and Remediation Waste will removed will be protected by the contractor during the remediation activities. Ground surfaces in the regulated area will be covered with two layers of six mil polyethylene sheeting and secured to prevent movement to capture and collect debris generated. The sheeting will extend a minimum of ten feet beyond the building area to be remediated.
- Each window will be sealed on the interior and the exterior with a minimum of one layer of six mil polyethylene sheeting with the edges sealed with tape and adhesive.
- Each window and surrounding CMU will be removed intact to minimize the potential for generation of dust or release of PCB-containing materials.
- Signs will be posted outside the enclosure to deter unauthorized personnel from entering.
- Removal work practices within the regulated containment will be implemented which facilitate the removal of the PCB Bulk Product Waste and associated CMU while also limiting the amount of dust and debris generated.
- All building materials removed during the remediation will be wrapped in polyethylene sheeting and transported to the waste storage area. The poly sheeting will be secured with tape to ensure that no dust is released during the transport and the contractor will be responsible for the remediation of any new releases caused by spillage. Windows and CMU removed at the expansion joints will be stored on and under secured poly sheeting within the building. Asphalt will be live loaded into trucks for off-site disposal as a < 50 ppm PCB Remediation Waste. Asphalt will not be stockpiled.

3.3 VERIFICATION SAMPLING FOR BUILDING MATERIALS

Bulk sampling of the substrate material (CMU blocks) was conducted in accordance with Subpart N of the regulations. Samples at a distance of approximately six inches from the location of the PCB Bulk Product (caulk) indicated PCB concentrations less than 1 mg/kg with the exception of at location Wall 3-3 where total PCB concentrations of 1.8 PPM were reported. Building materials within six inches of the caulk will be removed and disposed of together with the PCB Bulk Product. As MBTA conducted supplemental sampling of 25% of the windows and given the consistency of the caulking and the building construction, this number of samples is considered to be adequate in that the non-sampled locations are presumed to also be constructed using PCB-containing caulks and will be managed as such. Additional verification sampling is not required with the exception of at location Wall 3-3. CMU at this location will be removed laterally outside the limits of the sample collection points representing location Wall 3-3. Confirmatory sampling will be conducted following removal of the caulking and of the CMU outside of sample location Wall 3-3.

3.4 WASTE CHARACTERIZATION, TRANSPORT, AND DISPOSAL

Wastes will be pre-characterized to the satisfaction of the selected disposal facility(s) prior to remedial activities. PCB Bulk product wastes will be disposed of at the Minerva Enterprises landfill in Waynesburg, OH. Asphalt will be disposed of as PCB Remediation Waste (< 50 ppm PCBs) at the Waste Management Turnkey Landfill in Rochester, NH. PPE and other materials (tape, poly sheeting, etc.) will be disposed of at Turnkey Landfill.

3.5 EQUIPMENT DECONTAMINATION

All moveable equipment, tools, and sampling equipment which has contacted the PCB Bulk Product or Remediation Wastes will be decontaminated prior to leaving the site. Decontamination procedures will comply with either §761.79(b)(3)(i)(A), §761(79(b)(3)(ii)(A) or §761.79(c)(2).

All decontamination wastes, PPE, and polyethylene that come in contact with the PCB Bulk Product or Remediation Wastes will be disposed of with the asphalt pavement remediation waste at Turnkey Landfill. These wastes will be segregated as to matrix (aqueous, non-aqueous liquids, or solid materials [such as PPE]) and stored in drums or lined containers prior to transport from the site for disposal. Polyethylene sheeting used to contain window or wall caulking will remain on the removed CMU and be disposed of with those materials.

Rinse waters will be tested for PCB content and shipped offsite for disposal at a facility permitted to receive such wastes. Solid wastes will be containerized with the other regulated PCB wastes generated during the remediation project for transport and disposal.

3.6 NOTIFICATION AND CERTIFICATION

The removal and abatement measures described within this SIP will be initiated after receiving written approval of the plan from EPA. Notification of intent to perform these remedial measures is provided to EPA with this submittal.

Also enclosed with this submittal in Appendix D, in accordance with EPA 40 CFR 761.61(a)(3), is a written certification from MBTA stating the location of all reports detailing sample collection and analysis procedures used to assess or characterize the PCB contamination for this SIP that are available for EPA inspection.

4 DOCUMENTATION

4.1 FIELD NOTES

The Field Inspector will maintain a daily log of on-Site activities. The log will include, at a minimum, the following:

- Record of daily health and safety meeting
- Personnel and equipment on site
- Field procedures and observations
- Remediation progress and extents
- Sample locations, selection criteria, samples collected, analyses performed, and sample handling procedures
- Instructions given or received (telephone or verbal)
- Equipment decontamination procedures
- Building structure substrate testing
- Waste transporter information

4.2 PHOTOGRAPHS

Photographs will be taken of representative activities such as containment and remediation. The final extents of the remediation will also be photographed. Selected photographs will be included in the Remedial Action Report.

4.3 REPORT

The RAR will be prepared upon receipt of certifications of treatment/disposal from the treatment /disposal facility. The RAR will include the following:

- Site description
- A description of field procedures
- A photographic record of the remediation
- Waste characterization sample data
- Waste transport and treatment disposal information
- Copies of waste manifests and bills of lading

4.4 TRANSPORT AND TREATMENT/DISPOSAL CERTIFICATIONS

Manifests and/or Bills of Lading for the transportation, treatment and disposal of waste materials and certifications for the treatment or disposal of the wastes, if necessary, will be obtained from the transport and from the treatment/disposal facility.

4.5 RECORDKEEPING

All records and documents required by 40 CFR Part 761, including all those records required under Subpart K, will be prepared for and maintained by the MBTA. The records shall be maintained in a centralized location for a minimum of three years and will be available for inspection by representatives of EPA if requested.

21 Water Street, Cambridge
Summary of Soil Results

Parameter	TSCA Standard	SAMPLING LOCATION & DEPTH								
		NE Window 6in	NE Window 12in	NE Window Soil 12in (6-12in)	NE Window Soil 12in (12-18in)	NE Window Soil 24in (0-6in)	NE Window Soil 24in (6-12in)	NE Window Soil 24in (12-18in)	NE Window Soil 24in (6-12in)	NE Window Soil 36in (0-6in)
Sampling Date		6/25/2013	6/25/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013
Sample Depth		6- Inches from Bldg. (0-6" depth)	12- Inches from Bldg. (0-6" depth)	6-12 Inches	12-18 Inches	0-6 inches	6-12 Inches	12-18 Inches	6-12 Inches	0-6 inches
% Solids	~	82.2	79.3	93.8	93.1	90.6	93.3	92.5	93.3	93.0
SW-846 8082A (mg/Kg dry)										
PCB 1016	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
PCB 1221	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
PCB 1232	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
PCB 1242	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
PCB 1248	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
PCB 1254	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
PCB 1260	<1	**5.1**	**19**	**2.3**	**1.4**	**3.2**	**1**	**0.48**	**1**	**2**
PCB 1262	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
PCB 1268	<1	ND (0.48)	ND (2.4) *	ND (0.42)	ND (0.21)	ND (0.43)	ND (0.21)	ND (0.11)	ND (0.21)	ND (0.42)
TOTAL PCBs		**5.1**	**19**	**2.3**	**1.4**	**3.2**	**1**	**0.48**	**1**	**2**

Parameter	TSCA Standard	SAMPLING LOCATION & DEPTH	
		NW Expansion Joint 6in	NW Window 12in
Sampling Date		6/25/2013	6/25/2013
Sample Depth		6- Inches from Bldg. (0-6" depth)	12- Inches from Bldg. (0-6" depth)
% Solids	~	81.0	79.8
SW-846 8082A (mg/Kg dry)			
PCB 1016	<1	ND (1.2)	ND (0.49)
PCB 1221	<1	ND (1.2)	ND (0.49)
PCB 1232	<1	ND (1.2)	ND (0.49)
PCB 1242	<1	ND (1.2)	ND (0.49)
PCB 1248	<1	ND (1.2)	ND (0.49)
PCB 1254	<1	ND (1.2)	ND (0.49)
PCB 1260	<1	**6**	**3.8**
PCB 1262	<1	ND (1.2)	ND (0.49)
PCB 1268	<1	ND (1.2)	ND (0.49)
TOTAL PCBs		6	3.8

Parameter	TSCA Standard	SAMPLING LOCATION & DEPTH	
	RCS-1	NW Window Soil 24in (6-12in) Dup	NW Window Soil 36in (0-6in) Dup
Sampling Date		7/17/2013	7/17/2013
Sample Depth		6-12 Inches	0-6 Inches
% Solids	~	94.6	91.1
SW-846 8082A (mg/Kg dry)			
PCB 1016	<1	ND (0.10)	ND (0.11)
PCB 1221	<1	ND (0.10)	ND (0.11)
PCB 1232	<1	ND (0.10)	ND (0.11)
PCB 1242	<1	ND (0.10)	ND (0.11)
PCB 1248	<1	ND (0.10)	ND (0.11)
PCB 1254	<1	ND (0.10)	ND (0.11)
PCB 1260	<1	**0.25**	**0.57**
PCB 1262	<1	ND (0.10)	ND (0.11)
PCB 1268	<1	ND (0.10)	ND (0.11)
TOTAL PCBs		**0.25**	**0.57**

Parameter	TSCA Standard	SAMPLING LOCATION & DEPTH										
		NW Window 6in	NW Window 12in	NW Window Soil 12in (12-18in)	NW Window Soil 24in (0-6in)	NW Window Soil 24in (6-12in)	NW Window Soil 24in (12-18in)	NW Window Soil 36in (0-6 in)	NW Window Soil 36in (6-12 in)	NW Window Soil 36in (12-14 in)	NW Window Soil 48in (0-6 in)	NW Window Soil 48in (6- 10 in)
Sampling Date		6/25/2013	6/25/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013
Sample Depth		6- Inches from Bldg. (0-6" depth)	12- Inches from Bldg. (0-6" depth)	12-18 Inches	0-6 Inches	6-12 Inches	12-18 Inches	0-6 Inches	6-12 Inches	12-14 Inches	0-6 Inches	6-10 Inches
% Solids	~	74.2	79.8	94.2	88.9	92.2	91.6	90.2	91.8	94.9	91.0	93.0
SW-846 8082A (mg/Kg dry)												
PCB 1016	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
PCB 1221	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
PCB 1232	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
PCB 1242	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
PCB 1248	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
PCB 1254	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	**0.12**	ND (0.11)
PCB 1260	<1	**6.3**	**3.8**	**0.86**	**1.5**	**0.29**	**0.17**	**0.68**	**0.13**	**0.12**	**0.38**	**0.41**
PCB 1262	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
PCB 1268	<1	ND (1.3)	ND (0.49)	ND (0.10)	ND (0.21)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
TOTAL PCBs		**6.3**	**3.8**	**0.86**	**1.5**	**0.29**	**0.17**	**0.68**	**0.13**	**0.12**	**0.5**	**0.41**

Parameter	TSCA Standard	SAMPLING LOCATION & DEPTH					
		Center Window Soil 24in (6-12in)	Center Window Soil 36in (6-12in)	Center Window Soil 6in (6-12in)	Center Window Soil 24in (0-6in)	Center Window Soil 36in (0-6in)	Center Window Soil 6in (0-6in)
Sampling Date		7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013
Sample Depth		6-12 Inches	6-12 Inches	6-12 Inches	0-6 Inches	6-12 Inches	0-6 Inches
% Solids	~	94.9	94.8	94.8	89.6	90.2	89.6
SW-846 8082A (mg/Kg dry)							
PCB 1016	<1	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
PCB 1221	<1	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
PCB 1232	<1	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
PCB 1242	<1	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
PCB 1248	<1	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
PCB 1254	<1	ND (0.10)	**0.17**	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
PCB 1260	<1	**0.18**	**0.3**	**0.27**	**0.99**	**0.88**	**2.8**
PCB 1262	<1	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
PCB 1268	<1	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.44)
TOTAL PCBs		**0.18**	**0.47**	**0.27**	**0.99**	**0.88**	**2.8**

NOTES:
An asterisk (*) indicates that the minimum laboratory reporting limit exceeds the TSCA Standard (1 ppm)

Shaded values exceed the TSCA Limit of 1 ppm

Bolded values were detected above laboratory reporting limits

1 STORY CONC. BLOCK BUILDING
21 WATER STREET

SOIL PILE (APPROXIMATE)

VES-K-7
GROUND=21.8

8' CLF

NORTHWEST WINDOW | NW EXPANSION JOINT | CENTER WINDOW | NORTHEAST WINDOW

CONC. PAD

WEST ASPHALT 1	
1'-0"	1.42
3'-0"	0.9
4'-0"	1.26

WEST ASPHALT	
0'-6"	2.8
3'-0"	0.54

WEST ASPHALT 2	
1'-0"	2.06
2'-0"	0.89
3'-0"	0.59

WEST ASPHALT 3	
0'-6"	0.21
3'-0"	ND

SW CORNER ASPHALT	
1'-0"	ND
2'-0"	ND

SW ASPHALT	
0'-6"	0.26
1'-0"	ND
2'-0"	ND

SW ASPHALT 3	
0'-6"	5.8

SW ASPHALT 2	
1'-0"	2.06
3'-0"	1.04
4'-0"	1.33

CENTER ASPHALT	
0'-6"	1.9
1'-0"	1.4
2'-0"	1.1
3'-0"	0.93
4'-0"	0.95
5'-0"	.09

SE ASPHALT	
0'-6"	2.5
0'-1"	0.56
3'-0"	0.38

SE ASPHALT 4	
1'-0"	1.24
3'-0"	1.32
4'-0"	0.97

SE ASPHALT 2	
2'-0"	1.9
3'-0"	1.5
4'-0"	1.4

SE ASPHALT 3	
0'-6"	0.18
1'-0"	0.87
2'-0"	0.85

SE CORNER ASPHALT	
2'-0"	0.22

EAST ASPHALT 4	
1'-0"	0.6
3'-0"	0.14
4'-0"	0.13

EAST ASPHALT 5	

EAST ASPHALT	
0'-6"	1.1
1'-0"	0.63
2'-0"	1.1
4'-0"	1.12
5'-0"	1.4

EAST ASPHALT 2	
3'-0"	1.1
4'-0"	0.89
5'-0"	0.64

EAST ASPHALT 3	
1'-0"	2
2'-0"	0.51

3 feet | 10 feet | 20 feet | 40 feet | 10 feet | 20 feet | 8' CLF | 6' CLF

0.30 | 0.34 | 0.29 | 0.55 | 0.46 | 0.65 | 0.43 | 0.73 | 1.0 | 0.91 | 0.95 | 0.81 | 1.62 | 0.55 | 0.98 | 0.84 | 0.83 | 0.53 | 0.23 | ND | ND | ND | ND | ND | ND | ND | ND | ND

NOTES:

1. BASE MAPPING CREATED FROM THE FOLLOWING:
   - 1.1. PLAN TITLED "BAI-GLC-EC" DATED: 8/22/13 PREPARED BY BRYANT ASSOCIATES
   - 1.2. PLAN TITLED "HYM-EXISTING CONDITIONS", PROVIDED BY HYM/NORTHPOINT

0 25 50 Feet

LEGEND

- ASPHALT SAMPLE LOCATION
- PAVEMENT REMOVAL LINE
- LIMITS OF CONFIRMED PCB IMPACT
- SOIL SAMPLE LOCATION
- SOIL SAMPLE LOCATION - PROPOSED

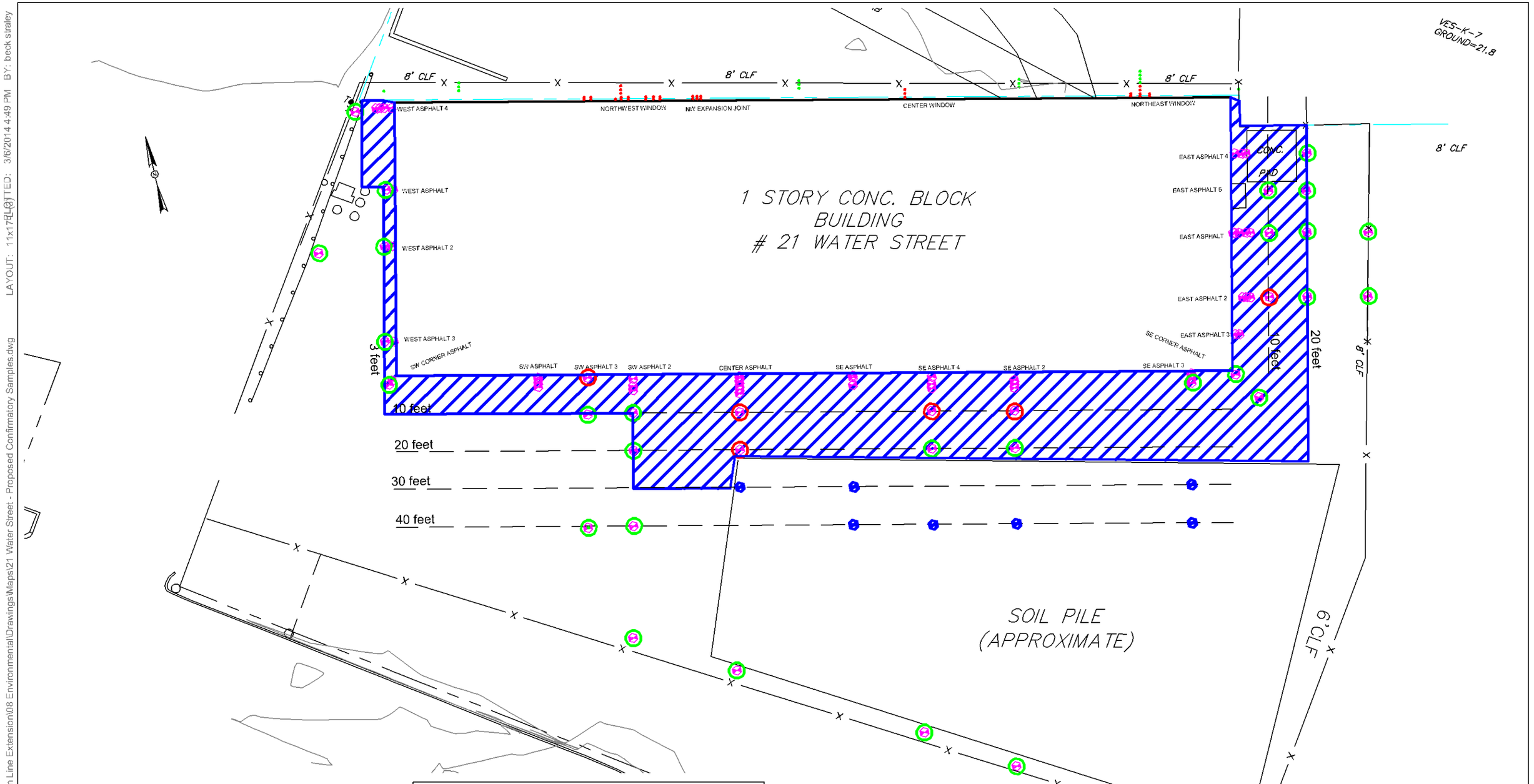
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.	20120096
DRAWN BY	BJS
CHECKED BY	RKQ
DATE:	1/29/2014
REVISED:	

21 WATER STREET
PCB CONCENTRATIONS IN ASPHALT

GREEN LINE EXTENSION
21 WATER STREET

FIGURE
2



NOTES:

1. BASE MAPPING CREATED FROM THE FOLLOWING:
   - 1.1. PLAN TITLED "BAI-GLC-EC" DATED: 8/22/13 PREPARED BY BRYANT ASSOCIATES
   - 1.2. PLAN TITLED "HYM-EXISTING CONDITIONS", PROVIDED BY HYM/NORTHPOINT

0 25 50 Feet

LEGEND

- PROPOSED POST SOIL PILE REMOVAL ASPHALT SAMPLE LOCATION
- ASPHALT SAMPLE LOCATION
- PAVEMENT REMOVAL LINE
- LIMITS OF CONFIRMED PCB IMPACT
- PCB CONCENTRATION <0.95 mg/kg
- PCB CONCENTRATION >0.95 mg/kg
- SOIL SAMPLE LOCATION
- SOIL SAMPLE LOCATION - PROPOSED

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.	20120096
DRAWN BY	BJS
CHECKED BY	RKQ
DATE:	03/06/2014
REVISED:	

PROPOSED POST SOIL PILE REMOVAL ASPHALT SAMPLES

GREEN LINE EXTENSION
21 WATER STREET

FIGURE
2

The HDR/Gilbane Team
100 Summer Street
Suite 250
Boston, MA 02110
Telephone 617-996-0771

Memo

Contract No. E22PS02

Date: March 10, 2014
To: Kimberly Tisa, U.S. EPA
From: Richard Quateman, LSP, CHMM, Kleinfelder
Subject: **MBTA Response to Comments on Revised Self-Implementing Plan and Contractor Work Plan**
cc: Lee McConnell, Art Spruch, Kleinfelder

This memorandum provides responses to U.S. EPA comments of January 18, 20, and 25, 2014 on the Revised Self-Implementing Plan (SIP) prepared by Kleinfelder on behalf of the Massachusetts Bay Transportation Authority (MBTA) and on the Contractor Work Plan prepared by J.R. Vinagro Corporation on behalf of Barletta Heavy Division, Incorporated, contractor MBTA.

U.S. EPA Comments on JR Vinagro Corporation Contractor Work Plan

1. The contractor letter of transmittal was dated December 30, 2013. This letter of transmittal indicates that the "Submittal #5/Rev. B: (revised) PCB Contaminated Building Materials Plan" was being provided for the project.

a. The submittal document was not denoted as being a "revised" document.
b. The CWP was dated November 15, 2013, so it is not clear if this is the "revised" plan.

The "Revision" refers to an internal revision of the document and reflects revisions made prior to submittal to U.S. EPA. This will be clarified in a revised CWP.

2. The CWP indicates that the owner's representatives are Kleinfelder and Nover-Armstrong Associates. However, the submitted PCB cleanup plan (dated November 6, 2013) appears to reference Kleinfelder and HDR/Gilbane Joint Venture. Further, Nover-Armstrong Associates is presented as a sub-contractor to Kleinfelder in the PCB cleanup plan. Thus, it is unclear what is meant by "owner's representatives".

Kleinfelder is a member of the team that comprises the HDR/Gilbane Joint Venture, which is the Project Management/Construction Management consultant to MBTA. Investigations of the building and property were conducted by Kleinfelder and NAA.

3. Please clarify how dust will be monitored and what the dust action level is for the project.

Per the SIP (p. 17), monitoring will be performed for total suspended particulates (TSP) (dust). The background concentration within each control area will be determined prior to remedial actions and a control area background level will be established. If, during the performance of air monitoring during removal, the dust levels outside the regulated/containment area are observed to increase by 20% over the background level determined prior to the remediation, the contractor shall stop work, and inspect and/or reestablish the regulated/containment area and associated engineering controls."

4. Since it is not clear the extent of soil contamination at the Site, a figure showing the location of the sediment barriers should be included in the CWP. How will the sediment barriers be installed?

Sediment barriers will be installed at the rear of the building prior to start of remediation and demolition. Limited vegetation removal (cut to ground) will be required for hay bale installation. Placement of equipment is not planned in unpaved areas of the property. See attached figure.

5. Page 1-2. With respect to stockpiling of materials inside and outside the building, please describe how the requirements under § 761.65(c)(9) will be met. Please also be aware that the marking requirements under § 761.40 and § 761.45 apply to both the stockpiled materials and the storage area(s).

Please see attached revised CWP. Vinagro intends to stockpile Bulk Remediation Waste within the building. The applicability of § 761.40 and § 761.45 is acknowledged.

6. Page 1-2. With respect to removal of the asphalt prior to removal of PCB bulk product waste, the MBTA may wish to reconsider this approach. If the asphalt is removed there is a possibility of contamination to surrounding soils during caulk, window and adjacent building substrate removals. While the CWP proposes to place poly over the exposed soil, there is still a higher potential for soil contamination with poly than with a hard surface such as asphalt that could be covered with poly.

MBTA, Kleinfelder and Vinagro concur with your recommendation for removal of pavement following building substrate removals. The revised CWP reflects this change in sequencing.

7. The decontamination provision at § 761.79(c) would apply to field equipment. The proposed procedure described in 1.1.2 does not appear to meet those specified in the PCB regulations.

The revised CWP acknowledges this requirement. Field equipment will be decontaminated using diesel fuel in accordance with regulations.

8. What is the proposed disposal facility for decontamination materials and PPE?

PPE and decontamination materials will be disposed of with the PCB Remediation Waste.

U.S. EPA Comments on Kleinfelder Field Memo No. 7 ("Memo")

1. The Memo indicates that the initial asphalt samples were collected at 6-inches from the building foundation. Generally, the highest PCB concentrations are directly below the caulk drip line, which would be directly at the foundation, not six inches away. Please describe why the six-inch distance was approach for the initial PCB samples.

Samples were collected at 6" from the building as an initial outer boundary; had samples been non-detect, then nearer sampling locations could have been selected. As asphalt sample results were > 1 ppm in this location, Kleinfelder has assumed that asphalt closer to the building has PCB concentrations ≥ than the 6" samples.

2. Pages 3 and 4.

a. With respect to the samples described, EPA is not clear which samples are being discussed. For example, for the South Side, there is reference to five (5) locations at the fence line; however, both Plates 1 and 2 only show four (4) samples along the southern fence line. Similarly, at the 20' distance there is reference to six (6) samples; however, only 4 samples are shown on Plates 1 and 2 on the South Side.

The memorandum has been amended to reflect correct number of samples.

b. It would be helpful if the PCB concentrations (i.e., not just > .95 mg/kg) at each sampling location could be shown on one or both figures.

A revised figure is attached.

c. For the West Side, it is indicated that PCB concentrations diminish to < 1.0 ppm at a 2-foot distance from the building. However, please note that both Plates 1 and 2 indicate a 3-foot distance.

Noted: This has been corrected in the Memorandum.

d. Please clarify what the "soil pile" shown on Plates 1 and 2 and referenced in the Memo is.

The soil pile is composed of soil excavated from within the MBTA commuter rail right-of-way in the vicinity of the Medford Street Bridge in Medford. Analysis of this soils confirmed that it is not contaminated by oil or hazardous materials above MCP RCS-1 standards.

e. Please clarify exactly where the transformer pad is. Is there an active transformer and if so, is the transformer dry or does it contain oil? If there latter, does the oil contain PCBs?

The transformer is located on the west side of the building, within the limits of pavement.

Kleinfelder is inquiring of NSTAR Electric as to the nature of this transformer. Removal of this transformer is scheduled to be conducted by NSTAR, which indicated that there is a Work Order for its removal. Kleinfelder observed no evidence of leakage from this pad-mount transformer.

f. What and where is the concrete pad that is reportedly located on the east side of the building?

The location of the pad has been added to the revised Site Plan. The former purpose of the pad is not known.

g. PCB-contaminated asphalt would not meet the definition of a PCB bulk product waste since no caulk was "attached" to the asphalt and the asphalt is not part of the building demolition. The asphalt would be classified as a PCB remediation waste.

Noted. Asphalt will be managed as low level PCB remediation waste (<50 ppm, as found).

h. A figure showing the locations of the post-removal asphalt samples should be provided. In addition that those indicated in the Memo, an additional sample should be collected at the SW Asphalt sample 10-foot cut-line.

Noted. A figure indicating post-removal sample locations is attached. An asphalt sample has been collected from the 10-foot cut line at SW Asphalt; the results will be forwarded to U.S. EPA upon receipt by Kleinfelder.

i. What is the thickness of the asphalt and when was it installed at the Site?

The asphalt is approximately 4 inches in thickness. The date or dates of installation are not known. Patches are known to have been placed following UST removals between 1999 and 2006.

This is follow up to my January 18, 2014 comments on the CWP. I have reviewed the revised SIP dated December 6, 2013 (received by EPA on Dec. 31, 2013) and provide the following comments.

1. Is the building currently in-use or is it now vacant? If in-use, when will the occupants be re-located?

The building is vacant.

2. It is indicated that "fixed objects" will be covered and critical barriers will be sealed. Who will do this work as it is not clear in the SIP or the CWP.

Vinagro will be responsible for sealing the building. dust control will be implemented by wet methods, as necessary. Since preparation of the SIP, the building has been vacated and emptied of its contents. If fixed items such as furnace, hot water heater, etc., could be impacted by any dust generation during saw-cutting of CMU, these items will be covered in poly sheeting.

3. Where is the waste storage area(s)? It is referenced in the revised SIP and the CWP did not specify the location(s).

Windows and CMU removed at the expansion joints will be stored on and under secured poly sheeting within the building. Asphalt will be live loaded into trucks for off-site disposal as a < 50 ppm PCB Remediation Waste. Asphalt will not be stockpiled.

4. There is discrepancy between the CWP and the revised SIP. The revised SIP (and a 6/26/13 MBTA Response) indicated that PCB bulk product waste would be disposed of at a TSCA permitted facility. However, the CWP indicates that the waste will be disposed of at Minerva, which is not a TSCA permitted facility.

Per our discussions, the SIP was incorrect in stating that PCB bulk product waste would be disposed of at a TSCA permitted facility. PCB bulk product waste will be disposed of at Minerva.

5. Page 15, bullet 5, revised SIP. It is indicated here that there is no indication that soil or ground surfaces are impacted by PCB. Unclear why this statement is still in the PCB cleanup submittal given both the pavement and soil sampling data.

Agree. This bullet should be disregarded; it was a carry-over from before soil and asphalt were sampled.

6. Page 13, Section 2.6.1.1. This section provides supplemental sampling to be undertaken to define limits of soil impacts. The initial sampling depth proposed is 0-6 inches. Please be aware that both Subpart N and O have a 0-3 inch sampling depth limit. Thus, it is not clear why a 0-6 inch depth is proposed as based on the information provides, the PCB contamination appears to be a surficial impact. Was any sampling conducted to compare the 0-3 inch vs. 0-6 inch sampling depth?

Sampling was not conducted at the 0-3" strata. However, where PCB contamination greater than 1.0 ppm was encountered in the 0 – 6" strata it was also typically encountered at greater depths (6+ inches). Based on the difficulty of limiting soil removal using mechanical means to a 3" strata, removal in 6" increments is considered conservative in assessing contamination limits. Bottom confirmation sampling will be limited to a 3" depth limit.

7. Page 8, Section 2.3.4. The last paragraph references "walk caulk". This appears to be a typo as "walk" should be "wall" based on the information in the tables.

Noted.

Please note that in its Jan. 18, 2014 email EPA provided comments on the pavement/soil work based on the Kleinfelder's Memo #7. This Memo appears to be substantially equivalent to the pavement/soil discussion provided in the revised SIP.

Noted.